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Letters to the Editor

Evidence-based or evidence-biased?

To the Editor,

Dr. Goodyear-Smith's article[1] entitled "What is the evidence for non-sexual transmission of gonorrhoea in children after the neonatal period? A systematic review" is an interesting historical treatise, but she provides neither evidence nor a systematic review. Evidence-based medicine (EBM) is the integration of best research evidence with clinical expertise and patient values.[2] In the diagnosis of a condition, best research evidence is defined as clinically relevant research involving accuracy and precision of diagnostic tests[2] (in this case, regarding diagnosis of non-sexual transmission of gonorrhea). A systematic review is "a summary of the medical literature that uses explicit methods to systematically search, critically appraise, and synthesize the world literature on a specific issue. Its goal is to minimize both bias...and random error".[2] The "methods" section of a systematic review should describe "how the investigators assessed the validity of individual studies".[2] Before a systematic review, or any piece of the literature, is used to change clinical practice, its validity, quality and freedom from bias must be ascertained. The best systematic reviews have multiple, independent reviewers of individual studies with good agreement among reviewers, and establish a clear method for assessing validity of the included studies.[2] There are fundamental problems with Dr. Goodyear-Smith's "systematic review" that prohibit it from being regarded as "evidence" of anything. There is no assessment of the validity of the papers included in the review, multiple studies were misinterpreted by the author, higher quality studies addressing non-sexual transmission were not included, and the review was conducted by one person with obvious personal bias.

Prior to making the diagnosis of non-sexual transmission of gonorrhea, other modes of known transmission (i.e. sexual) must be ruled out. Just because an author from the late 1800s or early 1900s stated gonorrhea in a child was non-sexually transmitted does not mean sexual abuse was effectively ruled out. As opposed to taking these studies at face value, Dr. Goodyear-Smith should have assessed their validity. An appropriate assessment of the validity of the studies included in this "systematic review" would have included (1) confirmation that gonorrhea was diagnosed utilizing appropriate testing methods,[3] (2) confirmation that sexual abuse was ruled out in each study, and (3) assessment of the validity of the method used to rule out sexual abuse in each study. Without this type of assessment, it is impossible to tell if the children included in the studies referenced by Goodyear-Smith actually had gonorrhea, and it is impossible to tell if the transmission of gonorrhea was sexual or non-sexual. Because of this, many of the studies cited by Goodyear-Smith are not clinically valid or relevant. As a result, neither is her "systematic review".

For a "systematic review" that purports to have excluded "opinion-based" references, there is a considerable amount of bias and opinion, and the review consists almost totally of studies of questionable validity. Goodyear-Smith states "papers were graded according to whether all or some of the contained cases were due to definite, probable or possible non-sexual transmission." It is unclear how the author made this determination. For example, Dr. Goodyear-Smith cites the Nair article in her table as providing evidence for "possible" non-sexual transmission ("non-sexual contact with...friends"), yet the authors of this article state "We were unable to determine the source of N. gonorrhoeae in this survey."[4] Unknown mode of transmission is not evidence for non-sexual transmission, but Dr. Goodyear-Smith uses it as such. Dr. Goodyear-Smith also fails to point out some anomalies in the studies she reviewed. For example, in the Shore study[5], which is cited as providing evidence for "probable" non-sexual transmission" by "infected mothers... with contaminated hands," 3 of 15 children in this study were determined as sexual transmission due to their history of rape. Five cases were unknown transmission. The remaining seven of all co-slept with their parents and either one or both parents were noted to have gonorrhea. While the gender of the infected parent was not given, it is nonetheless interesting that in the 5 of 7 cases where the child and one parent had gonorrhea, the other parent who was in the same bed did not have gonorrhea. It is a bit curious that the close, probable sexual, contact of two adult partners did not result in transmission of the disease, but the close non-sexual contact of the child

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and adult did. Could it be that the child was sexually abused? Dr. Goodyear-Smith does not explore this possibility.

It is not certain that some of the studies cited in this article are published in peer-reviewed journals as the citations are incomplete (in addition, some citations erroneously list the authors as "anonymous"). It is totally baffling why case reports met the criteria for this "systematic review," yet randomized controlled trials, comparing, for example, the gonorrhea rates of children who were sexually abused to children who were not, were excluded. One such study[6] that was not cited was a prospective study of 209 sexually abused girls who were compared with 108 control girls. The diagnosis of sexual abuse was not based on finding a sexually transmitted infection. No gonorrhea was found among the non-abused group. It is also curious that Dr. Goodyear-Smith does not address the fact that 27 of her cited studies are more than 80 years old, and that the "gonorrhea epidemics" in children's institutions have not occurred for more than 50 years. Dr. Goodyear-Smith correctly points out the difficulties in accurately confirming the *Neisseria gonorrhoeae* species, but does not mention this when discussing studies that took place at a time when this would be a significant problem. The fact that child sexual abuse was not widely acknowledged until the 1970's and 1980's is not mentioned either. Perhaps many of the children in these older studies did not have gonorrhea. Perhaps they did have gonorrhea, were sexually abused and then sexually acted out when placed in an institution. Perhaps they were sexually abused in the institution. None of these other possibilities are mentioned in this "systematic review."

Multiple independent reviewers, as are found in high-quality systematic reviews worthy of publication, evaluate the validity of included studies and ensure that the review is free of unsupported personal bias. As the sole author, Dr. Goodyear-Smith freely interjected her own biased, unsupported beliefs and confused them with evidence. Many times in the article, the author interjects her own opinion regarding the possibility of sexual transmission: "the pattern of spread was clearly due to contamination and not sexual abuse of the children in the institutions", and "there was no possibility in this context of the infection being transmitted by sexual abuse of the babies." These speculative statements seem to refer to reports of non-sexual transmission from the early 1900s and have no place in an article that purports to be a systematic, evidence-based review with minimized bias. It is unclear how the author definitively ruled out sexual transmission in these cases. In the "methods" section, the author states that papers not published in English were excluded, but English language papers reporting details of case series not published in English were included in cases of institutional epidemics. This means the author didn't actually read the primary literature that she is including in this "systematic review". Scientifically, that is inexcusable. Goodyear-Smith states, "key authors were contacted"; however, the majority of papers cited as direct evidence of non-sexual transmission were authored in the late 1800's or early 1900's. It is unlikely that any of the authors of those papers are actually still alive. Dr. Goodyear-Smith supports her belief that non-sexual transmission of gonorrhea is particularly a problem in young children by postulating that the prepubertal anatomy predisposes these children to the disease. Her supportive statements are not referenced except for "poor local hygiene", and it is unclear how hygiene is related to transmissibility of gonorrhea. The most preposterous of her suggested risk factors for gonorrhea is that the pre-pubertal "labia tend to open when the child squats." What the labia do when a child (or adult) squats and how this is related to gonorrhea is a mystery known only to Dr. Goodyear-Smith. There is no scientific clinical evidence that any of the cited characteristics actually result in greater non-sexual transmission of gonorrhea in prepubertal females.

In conclusion, we are dismayed that this treatise is presented as a "systematic review," when in fact it is one person's speculative journey into her belief that non-sexual transmission is not rare. The current evidence, based on recent prospective and case-control studies, is that gonorrhea vulvovaginitis is commonly sexually transmitted and is non-sexually transmitted only in extremely rare circumstances. This paper does not give us rhyme, reason or evidence to change our clinical practice in this regard.

References

1. Goodyear-Smith F. What is the evidence of non-sexual transmission of gonorrhoea in children after the neonatal period? A systematic review. *J Forensic Legal Med* 2007;14(8):489–502.
2. Sackett D, Straus S, Richardson W, Rosenberg W, Haynes R. *Evidence-based medicine: how to practice and teach EBM*. 2nd ed. New York, NY: Churchill Livingstone; 2001.
3. American Academy of Pediatrics. Gonococcal infections. 27th ed. In: Pickering LK, editor. *Red Book: 2006 report of the committee on infectious diseases*. Elk Grove Village, IL: American Academy of Pediatrics; 2006.
4. Nair P, Glazer-Semmel E, Gould C, Ruff E. *Neisseria gonorrhoeae* in asymptomatic prepubertal household contacts of children with gonococcal infection. *Clin Pediatr* 1986;**25**:160–3.
5. Shore WB, Winkelstein JA. Nonvenereal transmission of gonococcal infections to children. *J Pediatr* 1971;**79**(4):661–3.
6. Gardner JJ. Comparison of the vaginal flora in sexually abused and non-abused girls. *J Pediatr* 1992;**120**:872–7.

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